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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/764,615	01/26/2004	Rajiv K. Bhateja	59935.us	8926

7590 09/26/2006

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EXAMINER	
CHERRY, STEPHEN J	
ART UNIT	PAPER NUMBER
2863	

DATE MAILED: 09/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/764,615	BHATEJA ET AL.	
	Examiner	Art Unit	
	Stephen J. Cherry	2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 June 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *5-14 and 17-63* is/are pending in the application.

4a) Of the above claim(s) *6-14,18-26,31-35,37-56 and 61-63* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *5, 17, 27-30, 36, 57-60* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 6-22-2006 has been entered.

Election/Restrictions

Applicant's traverse of the previous requirement for restriction in the reply filed on 6-22-2006 is acknowledged. In view of amendments to claims and applicants arguments, the following requirement for restriction will apply.

Amended claims 6-14, and 18-26, and 31-35 are directed to an invention that is independent or distinct from the invention originally claimed and examined on the merits in a first office action for the following reasons:

Claims 6-14, and 18-35, as amended or newly submitted, 12-30-2005, and claims 5 and 17, as presented on 1-26-2004 and addressed in the office action dated 10-7-2005 are related as described below, thus restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 5, 17, as amended 6-22-2006, and 36, 57-60 as newly presented 6-22-2006, and 27-30 as added 12-30-2005, drawn to system and method for monitoring process with scaling and linear variable differential transformer input, and examined in the office action dated 10-7-2005 , classified in class 702, subclass 104.

II. Claims 6-14 and 33-35, as amended 12-30-2005, and 37-47, 63, as newly claimed 6-22-2006, drawn to apparatus for monitoring production process with identification of type of sensor module, classified in class 702, subclass 122.

III. Claims 18-26, 31-32, as newly presented 12-30-2005, and 48-56, 61-62 as newly presented 6-22-2006, drawn to method and apparatus for multiple ranges or visual representations of data, classified in class 702, subclass 188.

Inventions I and (II-III) are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination I has separate utility such as monitoring process with scaling and linear variable differential transformer input without identifying the type of sensor or splitting the signal. See MPEP § 806.05(d).

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 6-14, 18-26, 31-35, 37-56, 61-63 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 818.02(a) and 821.03.

Claim Objections

Applicant is advised that should claims 27-30 be found allowable, claims 57-60 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 28 and 58 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 28 and 58 recite entering the maximum travel in units of voltage; however, voltage is a measure of electrical potential, not distance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 27, 29-30, 36, 57, and 59-60 are rejected under 35 U.S.C. 102(b) as being anticipated by Acces I/O products Model LVT-8 User Manual ("Acces").

Regarding claims 27 and 57, Acess discloses a method of monitoring a production process using a hardware monitoring apparatus having one or more sensors selected from the group consisting of a dc sensor, a differential sensor, a current sensor and a position sensor, the method comprising:

(a) entering scale information for the one or more of the sensors (Acces page 5-2, line 20, jumper);

(b) setting a gain to an initial value for the one or more of the sensors (Acces, page 3-4, line 12);

(c) setting an offset to an initial value for the one or more of the sensors (Access, page 5-1, line 17, initial offset pot position);

(d) recording a minimum voltage produced by the position sensor as a complete range of movement of the position sensor is traversed (Access, page 5-1, line 18);

(e) recording a maximum voltage produced by the position sensor as the complete range of movement of the position sensor is traversed (Acces, page 5-2, line 25);

(f) identifying a linear region of operation of the position sensor (Acces page 3-4, line 12);

(g) adjusting the offset while the position sensor is operating within the linear region (Acces, page 5-1, line 16); and

(h) adjusting the gain while the position sensor is operating at a maximum desired position within the complete range of movement (Acces, page 5-2, line 15).

Regarding claims 29 and 59, and in view of the rejection of claims 27 and 57 above, Acces discloses the method of claim 27 and 57 wherein:
step (c) further comprises setting the offset to zero (Acces, page 5-1, line 24); and
step (b) further comprises setting the gain so that the maximum voltage produced by each of the sensors is substantially equivalent to a known reference value (Acces, page 5-2, line 18).

Regarding claims 30 and 60, and in view of the rejection of claims 27 and 57 above, Acces discloses the method of claim 27 and 57 wherein the position sensor is

selected from the group consisting of a slide encoder and a linear variable differential transformer (Acces, page 5-1, line 5).

Regarding claims 36, Acess discloses a method of monitoring a production process using a hardware monitoring device which receives input from a linear variable differential transformer, the method comprising the steps of:

(a) accepting scale information for the linear variable differential transformer input (Acces, page 3-4, line 12);

(b) setting a gain of the hardware monitoring device to an initial value (Acces, page 3-4, line 12);

(c) setting an offset of the hardware monitoring device to an initial value (Access, page 5-1, line 17, initial offset pot position);

(d) recording a minimum voltage produced as a complete range of movement of the linear variable differential transformer is traversed (Access, page 5-1, line 18);

(e) recording a maximum voltage produced as the complete range of movement of the linear variable differential transformer is traversed (Acces, page 5-2, line 25);

(f) identifying a linear region of operation of the linear variable differential transformer (Acces page 3-4, line 12);

(g) adjusting the offset while the linear variable differential transformer is operating within the linear region (Acces, page 5-1, line 16); and

(h) adjusting the gain while the linear variable differential transformer is operating at a maximum desired position within the complete range of movement (Acces, page 5-2, line 15).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,248,248 to Adley in view of U.S. Patent 6,362,768 to Younis et al, and in view of U.S. Patent 5,470,218 to Hillman et al, and further in view of Acces I/O products Model LVT-8 User Manual ("Acces").

Regarding claim 5, Adley discloses an apparatus for monitoring a production process performed by a production machine, said apparatus comprising: one or more sensor modules, at least one of said one or more sensor modules accepting an input from a linear variable differential transformer, each of said one or more of sensor modules including a signal conditioning circuit for conditioning said input ('248, fig. 5 A-C, and col. 8, line 34); one or more module slots each adapted to receive one of said one or more sensor modules ('248, col. 10, line 7, Allen Bradley PLC controller inherently has slots for I/O, as shown in U.S. Patent 4,510,565 to Dummermuth, figure

1); acquiring a stream of data from the sensor module installed in selected one of said one or more module slots ('248, fig. 6 indicates stream of data and col. 13); processing the stream of data ('248, fig. 1, data stored in memory of 197); and a storage device in communication with said processing device, said storage device for storing said data for later recall ('248, fig. 1, memory of 197).

However, Adley does not explicitly disclose the details of an operator interface of data conversion and calibration.

Hillman discloses generating a visual presentation for the stream of data ('218, fig. 1, 71); a display device in communication with said processing device, said display device displaying said visual presentation in a human readable format ('218, fig. 1, 70); an input device in communication with said processing device, said input device accepting commands from a user thereby allowing the user to control said processing device ('218, fig. 1, 72).

Younis discloses an interface circuit in communication between said one or more module slots and said processing device, said interface circuit converting analog signals into digital signals and digital signals into analog signals ('768, fig. 1, 40 and 50); a gain control circuit in communication responsive to said processing device and in communication with said signal conditioning circuit in each of said one or more sensor modules, said gain control circuit amplifying the stream of data from the sensor module installed in selected ones of said module slots ('768, fig. 3, "gain"); an offset control circuit responsive to said processing device and in communication with said signal conditioning circuit in each of said one or more sensor modules, said offset control

circuit applying a dc voltage offset to the stream of data from the sensor module installed in selected ones of said one or more module slots ('768, fig. 3, "calibration"); a latch control circuit responsive to said processing device and in communication with said signal conditioning circuit in each of said one or more sensor modules, said latch control circuit holding values of the stream of data from the sensor module installed in selected ones of said one or more module slots ('768, col. 8, line 37);

However, Younis does not explicitly disclose procedure of calibrating the LVDT.

Acces discloses accepting scale information for the linear variable differential transformer input; setting a gain to an initial value (Acces, page 3-4, line 12); setting an offset to an initial value (Access, page 5-1, line 17, initial offset pot position); recording a minimum voltage produced as a complete range of movement of the linear variable differential transformer is traversed (Access, page 5-1, line 18); recording a maximum voltage produced as the complete range of movement of the linear variable differential transformer is traversed (Acces, page 5-2, line 25); identifying a linear region of operation of the linear variable differential transformer (Acces page 3-4, line 12); adjusting said offset while the linear variable differential transformer is operating within the linear region (Acces, page 5-1, line 16); and adjusting said gain while the linear variable differential transformer is operating at a maximum desired position within the complete range of movement (Acces, page 5-2, line 15).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the operator interface of Hillman and the signal

conditioning of Younis with the invention of Adly to allow the operator a clear understanding of machine performance ('218, col. 2, line 16) and to allow the use of various signals with the same hardware ('768, col. 1, line 38), and further ecsuring accuracy in measurement through calibrated data.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,248,248 to Adley in view of U.S. Patent 6,362,768 to Younis et al, and in view of U.S. Patent 5,470,218 to Hillman et al, and further in view of Acces I/O products Model LVT-8 User Manual ("Acces").

Regarding claim 5, Adley discloses a method of monitoring a production process, said method comprising the steps of identifying one or more sensor modules installed in a hardware monitoring device, wherein at least one of the one or more sensor modules receives input from a linear variable differential transformer (248, fig. 5 A-C, and col. 8, line 34); acquiring data from the one or more sensor modules ('248, fig. 6 indicates stream of data and col. 13); processing the data acquired from the one or more sensor modules ('248, fig. 1, data stored in memory of 197).

However, Adley does not explicitly disclose the details of an operator interface of data conversion and calibration.

Hillman discloses generating a visual presentation from the data acquired from the one or more sensor modules ('218, fig. 1, 70).

Younis discloses an architecture for a computer system that has calibration capability.

However, Younis does not explicitly disclose procedure of calibrating the LVDT.

Acces discloses accepting scale information for the linear variable differential transformer input (Acces, page 3-4, line 12); setting a gain to an initial value (Acces, page 3-4, line 12); setting an offset to an initial value (Access, page 5-1, line 17, initial offset pot position); recording a minimum voltage produced as a complete range of movement of the linear variable differential transformer is traversed (Access, page 5-1, line 18); recording a maximum voltage produced as the complete range of movement of the linear variable differential transformer is traversed (Acces, page 5-2, line 25); identifying a linear region of operation of the linear variable differential transformer (Acces page 3-4, line 12); adjusting said offset while the linear variable differential transformer is operating within the linear region (Acces, page 5-1, line 16); and adjusting said gain while the linear variable differential transformer is operating at a maximum desired position within the complete range of movement (Acces, page 5-2, line 15).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the operator interface of Hillman and the signal conditioning of Younis with the invention of Adly to allow the operator a clear understanding of machine performance ('218, col. 2, line 16) and to allow the use of various signals with the same hardware ('768, col. 1, line 38), and further ecsuring accuracy in measurement through calibrated data.

Response to Arguments

Applicant's arguments with respect to claims 5, 17, 27-30, 36, 57-60 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen J. Cherry whose telephone number is (571) 272-2272. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SJC

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